

REMARKS

The foregoing amendment amends claim 1 and 6. Pending in the application are claims 1, 2 and 4-7, of which claims 1, 6 and 7 are independent. The following comments address all stated grounds for rejection and place the presently pending claims, as identified above, in condition for allowance.

Interview and Claim Amendments

Applicants thank the Examiner for the courtesy of the telephonic interview with Applicants representatives on January 26, 2006. Based on the discussion with the Examiner during the interview, Applicants amend claims 1 and 6 to recite that the seal surrounds the first gas diffusion layer and the second gas diffusion layer. Support for the amendment can be found throughout the application as originally filed, at least for example, in Figs. 3-5 and corresponding descriptions in the specification of the pending application. No new matter is added. The Examiner indicated that the amendment to claims 1 and 6 would overcome the outstanding rejection. The Examiner also indicated that claim 7 would be patentable over the cited art. Applicants provide following arguments in conformity with the discussion with Examiner.

Double Patenting Rejection

Claims 1-2 and 4-7 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent Application No. 10/752768. Since this is a provisional rejection, Applicants will address the rejection when the rejection is made actual or the application is otherwise passed to allowance.

Rejection of Claims 1-2 and 4-7 under 35 U.S.C. § 103

Claims 1-2 and 4-7 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,007,933 ("Jones") in view of Japanese Patent Application Publication No. JP 59-103077 ("JP '077"). Applicants respectfully traverse the rejection for the following reasons.

Claim 1 is directed to a fuel cell having the first and second gas diffusion layers on both sides of an electrolyte membrane, respectively. A liquid sealant having viscosity is provided on separators. The liquid sealant hardens to provide a seal with a certain degree of elasticity that prevents flowing of a reaction gas from the ends of the first and second gas diffusion layers. The seal surrounds the first and second gas diffusion layers and makes contact with both end faces of the first and second gas diffusion layers. Claim 2 and 4-5 depend from claim 1.

Applicants submit that Jones and JP '077 do not teach or suggest *a seal that surrounds the first gas diffusion layer and the second gas diffusion layer, contacts both end faces of the first gas diffusion layer and the second gas diffusion layer, and prevents flowing of a reaction gas from the ends of the first gas diffusion layer and the second gas diffusion layer*, as recited in claim 1.

The Jones reference teaches a fuel cell assembly including gaskets (304, 304') for sealing around the peripheral holes (210) of the flow plates (200). See Jones, column 6, lines 33-43. Jones, however, does not teach that the gaskets (304, 304') surround the gas diffusion layers to prevent reaction gas from flowing from the ends of the diffusion layers.

The JP '077 reference is cited by the Examiner to provide teachings for the liquid sealant and grooving bonding. See the Office Action, page 8, lines 8-10. JP '077, however, does not relate to a fuel cell. JP '077 does not teach a seal that surrounds the first gas diffusion layer and the second gas diffusion layer, and prevents flowing of a reaction gas from the ends of the first gas diffusion layer and the second gas diffusion layer, as recited in the claimed invention.

In light of the foregoing claim amendments and arguments, Applicants submit that Jones and JP '077 do not teach or suggest all of the limitations of claim 1. Claims 2 and 4-5, which depend from claim 1, are not rendered obvious over the cited prior art references. Applicants therefore request the Examiner reconsider and withdraw the rejection of claims 1-2 and 4-5 under 35 U.S.C. § 103(a), and pass the claims to allowance.

Claim 6

Claim 6 is directed to a fuel cell having the first and second gas diffusion layers on both sides of an electrolyte membrane, respectively. A liquid sealant having viscosity is provided in grooves formed in separators. The liquid sealant hardens to provide a seal with a certain degree of elasticity. The seal surrounds the first gas diffusion layer and the second gas diffusion layer and makes contact an end face of one of the first gas diffusion layer and the second gas diffusion layer. The seal is provided in the grooves formed in the separators.

Applicants submit that Jones and JP '077 do not teach or suggest *a seal that surrounds the first gas diffusion layer and the second gas diffusion layer, contacts an end face of one of the first gas diffusion layer and the second gas diffusion layer, and is provided in grooves formed in the separator*, as recited in claim 6.

As discussed above, the Jones reference teaches a fuel cell assembly including gaskets (304, 304') for sealing around the peripheral holes (210) of the flow plates (200). Jones, however, does not teach that the gaskets (304, 304') surround the gas diffusion layers. Moreover, Jones does not teach that the gaskets (304, 304') are provided in the grooves formed in the separator.

The JP '077 reference teaches the liquid sealant provided in a groove for bonding two components. JP '077, however, does not teach that the seal surrounds the first gas diffusion layer and the second gas diffusion layer. JP '077 does not teach that the seal contacts an end face of one of the first gas diffusion layer and the second gas diffusion layer, as recited in the claimed invention.

In light of the foregoing claim amendments and arguments, Applicants submit that Jones and JP '077 do not teach or suggest all of the limitations of claim 6. Applicants therefore request the Examiner reconsider and withdraw the rejection of claim 6 under 35 U.S.C. § 103(a), and pass the claim to allowance.

Claim 7

Claim 7 is directed to a fuel cell having the first and second gas diffusion layers on both sides of an electrolyte membrane, respectively. A projecting portion extends from the electrolyte membrane and projects from the peripheries of an anode side diffusion electrode and a cathode side diffusion electrode. A liquid sealant having viscosity is provided on the separators on either side of the projecting portion. The liquid sealant hardens to provide a seal with a certain degree of elasticity on both sides of and in contact with the projecting portion. The seal makes contact with both end faces of the first gas diffusion layer and the second gas diffusion layer while the membrane electrode assembly is located between the separators.

Applicant submit that Jones and JP '077 do not teach or suggest *a seal that contacts the end faces of gas diffusion layers as well as either side of a projecting portion extending from a solid polymer electrolyte membrane and projecting from the peripheries of an anode side diffusion electrode and a cathode side diffusion electrode*, as recited in claim 7.

The gaskets (304, 304') of Jones do not seal about the periphery of the reaction region of the fuel cell, but rather only the peripheral holes (210), and do not sandwich a projecting portion of a membrane electrode assembly. In contrast, the seal of the claimed invention is disposed on both sides of and in contact with a projecting portion extending about the periphery of the membrane electrode assembly. JP '077 also does not teach or suggest this feature of the claimed invention. In this respect, the Examiner indicated during the interview that claim 7 distinguishes patentably over the cited prior art.

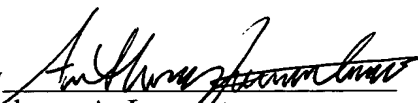
In light of the foregoing arguments, Applicants submit that Jones and JP '077 do not teach or suggest all of the limitations of claim 7. Applicants therefore request the Examiner reconsider and withdraw the rejection of claim 7 under 35 U.S.C. § 103(a), and pass the claim to allowance.

Conclusion

In view of the above amendment, applicants believe the pending application is in condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue. If, however, the Examiner considers that obstacles to allowance of these claims persist, we invite a telephone call to Applicant's representative.

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Respectfully submitted,

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